

## PATENT ABSTRACTS OF JAPAN

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## (54) COATED PIGMENT AND GRAVURE PRINTING INK COMPOSITION

## (57) Abstract:

PURPOSE: To obtain a coated pigment useful for obtaining a gravure printing ink composition excellent in viscosity, long-term stability and the gloss of printed matter.

CONSTITUTION: This pigment is a coated pigment prepared by adding 0.1-10 pts.wt. water-soluble acrylic polymer to 100 pts.wt. (in terms of the solid matter) water slurry of a monoazo lake pigment prepared by coupling a diazo component prepared by diazotizing an aromatic amine having a solubilizable group with a coupler component and laking the product.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the gravure ink constituent using the monoazo lake pigment and this pigment which made a fluidity, stability with the passage of time, and gloss improve.

[0002]

[Description of the Prior Art] The monoazo lake pigment which used as the diazo component aromatic amine which has a fusibility radical, and was obtained [ use / as a coupler component / beta-oxyphthalic acid or the beta-naphthol ] by carrying out coupling is widely used for various applications, such as coloring of printing ink, a coating, and plastics. As for these monoazo lake pigments, the control to which particle shape of a pigment is made detailed in order to make it clear, transparency and has been made in the color tone. However, when this pigment was used for the gravure ink of a solv mold, the more it made the particle detailed, condensation of a pigment particle progressed and, the more there was a fault that it could not be used by a viscosity rise or gelation of ink. Although the pigment constituent which used the formalin condensate of an aromatic series sulfonic acid as an additive was proposed in order to solve the above-mentioned fault (JP,62-18472,A), this pigment constituent did not have the weakly enough effectiveness of lowering viscosity, practical.

[0003]

[Problem(s) to be Solved by the Invention] This invention aims at offer of the solvent mold gravure ink constituent containing the viscosity in gravure in stability with the passage of time, the pigment that was excellent in the gloss of printed matter, and this pigment.

[0004]

[Means for Solving the Problem] This invention carries out coupling of the diazo component and coupler component which diazotized the aromatic amine which has a fusibility radical, and relates to the covering processing pigment which adds the water-soluble acrylic polymer 0.1 - 10 weight sections in the water slurry 100 weight section (solid content) of the lake-ized monoazo lake pigment, and comes to carry out covering processing.

[0005] As aromatic amine which has the fusibility radical which constitutes the diazo component of this invention, although a 2-chloro-4-toluidine-5-sulfonic acid, a 2-chloro-5-toluidine-4-sulfonic acid, a 4-toluidine-3-sulfonic acid, a 4-chloroaniline-3-sulfonic acid, anthranilic acid, 4-chloro anthranilic acid, 2-naphthylamine-1-sulfonic acids, these sodium salt, etc. are illustrated, for example, the derivative of a toluidine sulfon acid is desirable especially. Although a coupler component has beta-oxyphthalic acid or the desirable beta-naphthol, they may be acetoacetanilides.

[0006] Manufacture of the monoazo lake pigment of this invention can be conventionally carried out according to the manufacture approach of a well-known monoazo lake pigment. That is, the aromatic amine which has a fusibility radical is diazotized according to a conventional method, on the other hand, a coupler component is prepared according to a conventional method, coupling of both is carried out according to a conventional method, and the obtained color is lake-ized with the metal for the formation of a pigment lake. Calcium, barium, strontium, manganese, etc. are illustrated as a meta for the formation of a pigment lake.

[0007] This invention has the description to add in the pigment slurry which lake-ized the water-soluble acrylic polymer, and carry out covering process of the pigment. As an example of a water-soluble acrylic polymer, an acrylic-acid-maleic-acid copolymer, Polyacrylic acid, polymethacrylic acid, a polymaleic acid, and an isobutylene-maleic acid A serious condition, A styrene-acrylic acid Serious condition and these sodium salt, potassium salt, There is ammonium salt. More specifically Or the poise 520,530,540 by Kao Corp., DEMORU EP, P, and LP, Aron T-40 made from the Toagosei chemical industry, A-10SL, the JON krill 67,680 made from Johnson Polymer, and the Nippon Junyaku make -- there are JURIMA AC-10S, AC-20N, etc. The addition in the case of using the water-soluble acrylic polymer of this invention has desirable 0.1 - 10 weight section to the monoazo lake pigment 100 weight section at solid content conversion. Furthermore, they are good better \*\* 1 - 5 weight sections. The effectiveness to have used even if there was little effectiveness and there was than 10 weight sections, when fewer than the 0.1 weight section is not acquired. [ more ]

[0008] The vehicle resin used for the gravure ink of this invention is chosen from the resin of organic solvent fusibility. As a configuration of rotogravur ink, gum rosin, wood rosin, tall oil rosin, Rosin ester, the lime hardened rosin, the zinc-ized hardened rosin, mallein-ized rosin, As at least one sort of resin 10 chosen from fumaric-ized rosin, a nitrocellulose, ethyl cellulose, a polyamide, polyurethane, cyclized rubber, chlorinated rubber, etc. - 80 weight sections, and an organic solvent Aromatic hydrocarbon, aliphatic hydrocarbon, alcohol, ester, ketones, For example, toluene, a xylene, ethyl acetate, an acetone, normal hexane, At least one sort of solvents 10 of isopropyl alcohol - 80 weight sections. The covering processing pigment 5 of this invention - weight sections, a barium sulfate, a barium carbonate, It consists of extenders 0, such as a calcium carbonate, gypsum, alumina white, clay, a silica, a silica white, talc, and a calcium silicate sedimentation nature magnesium carbonate, - the 20 weight sections, in addition a plasticizer, an ultraviolet-ray inhibitor, an antioxidant, an antistatic agent, etc. are suitably included as an adjuvant.

[0009]

[Example] Hereafter, based on an example, this invention is explained more to a detail. The section means the weight section among an example and % means weight %.

Example 12 - The chloro-4-toluidine-5-sulfonic-acid sodium 42.8 section is put into the water 680 section, and it heats and dissolves in 75 degrees C. After adding the hydrochloric-acid 39 section to this 35% and cooling radiationally overnight [ after / \*\*\*\* ] The ice 480 section is added and it cools at degree C. The solution which consists of the water 38 section and the sodium-nitrite 12 section was added, it stirred for 45 minutes below 3 degrees C, and the diazo component was obtained. The beta-oxyphthalic acid 32.5 section is dissolved in the solution which consists of the water 608 section, the sodium-hydroxide 14.3 section, and the sodium-carbonate 4.3 section, and let what was cooled at 15 degrees C be a coupler component. The diazo

component was dropped at the coupler component in 10 minutes, the coupling reaction was advanced, it stirred for 60 minutes, and the color was obtained. Next, the hydrochloric acid adjusted to pH 7.5-8.0, the after [ heating ] barium chloride 43 section was added for this to 80 degrees C, stirring was continued for 30 minutes, and the lake-ized reaction was completed. After adding and stirring the water-soluble acrylic polymer DEMORU EP4 section (solid content) in the pigment 100 section slurry after this lake-izing, it filtered, rinsed and dried and the covering processing pigment was obtained.

[0010] The poise 5202 section (solid content) was operated like addition and the above instead of DEMORU EP to the lake-ized back pigment slurry of example 2 example 1, and the covering processing pigment was obtained.

The JURIMA AC-10S2 section (solid content) was operated like addition and the above instead of DEMORU EP to the lake-ized back pigment slurry o example 3 example 1, and the covering processing pigment was obtained.

The T-Aron 402.6 section (solid content) was operated like addition and the above instead of DEMORU EP to the lake-ized back pigment slurry of example 4 example 1, and the covering processing pigment was obtained.

[0011] A water-soluble acrylic polymer was not added to the lake-ized back pigment slurry of example of comparison 1 example 1, and also it was operated like the above, and the unsettled pigment was obtained.

The formalin condensate DEMORU N(Kao Corp. make) 2 section of an aromatic series sulfonic acid was operated like addition and the above instead o DEMORU EP to the lake-ized back pigment slurry of example of comparison 2 example 1, and the covering processing pigment was obtained.

[0012] The after [ heating ] strontium chloride 50 section was added for the color slurry after coupling of example 5 example 1 to 50 degrees C, stirring was continued for 30 minutes, and the lake-ized reaction was completed. After adding the DEMORU EP4 section in the pigment slurry after this lake-izing and carrying out heating stirring at 70 degrees C, it filtered, rinsed and dried and the covering processing pigment was obtained.

DEMORU EP was not added to the lake-ized back pigment slurry of example of comparison 3 example 6, and also it was operated like the above, and t covering processing pigment was obtained.

[0013] Next, the rotogravure ink fitness of the covering processing pigment of this invention is shown. The monoazo lake pigment constituent obtained each example was examined by the following approach.

(The examining method)

1. Polyamide, nitrocellulose mixed stock rotogravure ink monoazo lake pigment constituent 10 section polyamide, nitrocellulose mixing varnish 80 sect solvent (ethyl acetate, toluene, IPA) The 10 section above-mentioned compound is taught to a mayonnaise bottle with a capacity of 225ml with 3mmphi steel ball 300g, and a paint conditioner distributes for 60 minutes.

2. Polyurethane system rotogravure ink monoazo lake pigment constituent 13 section polyurethane system varnish 46 section solvent (MEK, toluene, IP The 41 section above-mentioned compound is taught to a mayonnaise bottle with a capacity of 225ml with 1mmphi glass bead 150g, and a paint conditioner distributes for 60 minutes.

[0014] The result of each gravure trial is as follows.

Table 1 Polyamide, nitrocellulose mixed stock rotogravure ink The viscosity of ink Immediately after ink-izing After one week Glossiness 6/60rpm.

6/60rpm. % Example 1 175/161 200/174 93.9 Example 2 220/205 580/484 90.5 Example 3 310/274 840/730 93.5 Example 4 225/212 660/570 90.3

Example 1 of a comparison 2400/952 4960/1442 85.1 The examples 2880/754 of a comparison 3790/1120 88.2 Example 5 560/550 940/730 86.9

Example 3 of a comparison 4160/1404 41500/7800 79.5 notes: Viscosity was measured by the Brookfield viscometer. ((cps) Unit)

[0015]

Table 2 Polyurethane system rotogravure ink The viscosity of ink Immediately after ink-izing After one week Glossiness 6/60rpm. 6/60rpm. % Example 140/113 165/125 85.3 Example 2 155/148 580/494 83.2 Example 3 165/125 655/525 85.0 Example 4 270/216 780/690 83.8 Example 1 of a compariso

1790/364 21200/4200 78.2 Example 2 of a comparison 730/264 5200/2200 80.4 [Effect of the Invention] According to this invention, the gravure ink

constituent which was excellent in the stability of viscosity and viscosity with the passage of time and the gloss of printed matter is obtained by coverin \*\*\*\* pigment front face to a water-soluble acrylic polymer in monoazo lake pigment manufacture.

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CLAIMS

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[Claim(s)]

[Claim 1] The covering processing pigment which carries out coupling of the diazo component and coupler component which diazotized the aromatic amine which has a fusibility radical, adds the water-soluble acrylic polymer 0.1 - 10 weight sections in the water slurry 100 weight section (solid content of the lake-sized monoazo lake pigment, and comes to carry out covering processing.

[Claim 2] The covering processing pigment according to claim 1 whose diazo component is a toluidine sulfonic-acid derivative and whose coupler component is beta-oxynaphthoic acid or the beta-naphthol.

[Claim 3] The gravure ink constituent which consists of a covering processing pigment according to claim 1 or 2 and a solvent mold rotogravure ink vehicle.

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[Translation done.]